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DISENTANGLING BEHAVIORAL INTENTION (BI)
AND BEHAVIORAL EXPECTATION (BE): THE
LATTER PREDICTS BETTER

by

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Disentangling Behavioral Intention (BI)
and Behavioral Expectation (BE): The
Latter Predicts Better

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Running Head: INTENTION VERSUS EXPECTATION

Abstract

Considerable research in social psychology has explored behavioral intention and its relation to future behavior, usually within the framework of Fishbein and Ajzen's (1975) theory of reasoned action. However, Fishbein and Ajzen as well as the field in general have confounded two very distinct constructs while theorizing about and investigating behavioral intention: behavioral intention (BI) and behavioral expectation (BE), an individual's self-prediction of his or her future behavior. In this paper we define both constructs; indicate how they have been confounded in the literature; and argue that behavioral expectation (BE) should be the better predictor overall since many common behaviors are unreasoned (i.e., mindless or habitual) behaviors, goal-type actions or else behaviors where the individual expects his or her intention to change in a foreseeable manner. These are all cases where present intention (BI) is not the direct determinant of behavior but where the individual may be capable of appraising whatever additional determinants exist and of including them within his or her behavioral expectation (BE). A study (N=197) is reported where student subjects received either a BE (n=84) or BI (n=113) version of a questionnaire pertaining to their performance of 18 common behaviors. Overall, behavioral expectation (BE) was the better predictor of subsequent self-reported performance.

The anxious batter approaches the plate, eyes Fernando Valenzuela on the mound and awaits with trepidation the first pitch. Had we the authority to call time out and ask the batter two simple questions, our likely dialogue would be as follows: (We) Do you intend to strike out? (He) Of course not! (We) Will you strike out? (He) Probably! Although this simple example demonstrates that intention and self-prediction are distinct constructs, easily separable in the minds of subjects, social psychologists have come to treat them as equivalent. Not only is this position logically indefensible, it has also hampered our ability to predict and understand individual performance of a wide array of human activities.

The prediction of individual behavior has interested behavioral scientists for decades. Within social psychology, most recent work stems from Fishbein and Ajzen's theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). By and large, researchers have accepted their proposal that "the best single predictor of an individual's behavior will be a measure of his intention to perform that behavior" (Fishbein & Ajzen, 1975, p. 369). However, as explained by Warshaw, Sheppard, and Hartwick (in press), two theoretically distinct constructs have been confounded and used interchangeably under the 'intention' label: behavioral intention (BI) and what Warshaw et. al. (in press) have coined behavioral expectation (BE), an individual's prediction of his or her future performance. In this article we: draw the theoretical distinction between behavioral intention (BI) and behavioral expectation (BE); claim that the field has overlooked this distinction; argue on theoretical grounds that expectation (BE) should predict future behavior better than intention (BI), and present a study that supports this claim.

Theoretical Distinction Between Behavioral Intention (BI)
and Behavioral Expectation (BE)

The logical starting point for our analysis is to define behavioral intention (BI) and behavioral expectation (BE), comparing and contrasting their meanings.

Behavioral Intention (BI)

We base our definition of behavioral intention (BI) on the standard dictionary definition of 'intend': "to have in mind as a purpose; plan to do, use, give, etc." (Webster, 1972). From this perspective, intention (BI) relates to our having formulated conscious plans to perform or not perform some specified future behavior. The rationale for adopting this dictionary-based meaning is twofold:

(1) Intention (BI) has not been clearly, explicitly defined in the behavioral literature. Rather, it is typically left undefined, presumably because its meaning is 'self-evident' (e.g., Miniard & Cohen, 1979; Ryan, 1982). When a definition is proffered, a consequence of having an intention is specified rather than the meaning of intention per se (e.g., "Our theory views a person's intention to perform (or not perform) a behavior as the immediate determinant of the action" (Ajzen & Fishbein, 1980, p. 5)) or else intention is defined as self-prediction (e.g., "A measure of the likelihood that a person will engage in a given behavior may be termed behavioral intention" (Ajzen & Fishbein, 1980, p. 42; also see Fishbein & Ajzen, 1975, p. 288 for a similar definition)).

(2) Studies which have elicited what we construe to be intention (BI) responses from subjects have typically employed questionnaire wording like "I intend to (do X)" (e.g., Fishbein, Ajzen, & Hinkle, 1980). Presumably,

in the absence of instructions to the contrary, respondents ascribe the everyday meaning to the word 'intend' while answering such questions, which is reflected in its standard dictionary meaning.

Together, these factors strongly suggest that both subject and experimenter are, at least implicitly, operating from the everyday notion of what intention (BI) means. Hence, our proposed definition aims to make more explicit what has been left implicit.

Consistent with the arguments of Fishbein and Ajzen (e.g., 1975) and Warshaw, et. al. (in press), we view intention (BI) as a continuous rather than discrete variable. On the zero-to-one interval, a value of BI close to one implies that the subject has consciously formulated a plan to perform the given act. A BI value close to zero means the subject has consciously decided not to perform the act, while values near 0.5 indicate that no well-defined plan has been consciously formed either way. Thus, the closer that intention (BI) is to one (or zero), the greater the behavioral commitment to perform (or not perform) the given behavior. Clearly a key aspect of our definition is that an intention (BI) is a conscious action plan which functions as a major determinant of future behavior.

Behavioral Expectation (BE)

Behavioral expectation (BE), on the other hand, is the individual's perceived likelihood that he or she actually will perform some future behavior. It is based on his or her cognitive appraisal of both volitional and nonvolitional behavioral determinants: intentions, habits, abilities and environmental facilitators or constraints, as well as on anticipated changes in these determinants (Warshaw et. al., in press).

Like intention (BI), behavior expectation (BE) is treated as a continuous variable over the zero-to-one interval. A BE value close to one implies high perceived likelihood of performing the behavior, whereas a value close to zero means that performing the behavior is judged as quite unlikely by the respondent. Values of BE close to 0.5 reflect undertainty about whether the behavior will be performed.

While intention (BI) is treated by researchers as an important determinant of behavior (e.g., Fishbein & Ajzen, 1975), we view behavioral expectation (BE) less as a determinant and more as a cognitive judgement made by the individual as he or she reflects upon the situation (Warshaw et. al., in press). However, if the individual has no present intentions regarding the behavior then the individual might use his or her behavioral expectation (BE) as a self-attribution of what he or she really wants to do and then use it to guide future behavior or at least its attempt. This reasoning is consistent with prior research on self-perception (e.g., Bem, 1967, 1972) and self-fulfilling prophecies (e.g., Jones, 1977), and has been empirically supported by Sherman (1980).

Comparing Intention (BI) and Expectation (BE)

There are two important distinctions between intention (BI) and expectation (BE). First, whereas intention (BI) involves the conscious formulation of an action plan, expectation (BE) is the perceived likelihood of performing a behavior, whether or not an intention (BI) has been formulated. Second, expectation (BE) takes into consideration several behavioral determinants in addition to present intent (BI), such as anticipated habits, impediments and changes in intent. Clearly, behavioral expectation (BE) is a broader, more inclusive construct than is behavioral intention (BI), with BI being one potential determinant of BE (Warshaw, et. al., in press; subsequently acknowledged by Ajzen, in press).

The fact that BE conceptually incorporates more behavioral determinants than does BI is not very significant if, in fact, most common behaviors are strictly determined by present intention (BI), which Fishbein and Ajzen have repeatedly claimed (e.g., 1975, p. 369, 380; Ajzen & Fishbein, 1980, p. 5). However, the field is increasingly rejecting this position. First, many researchers now claim that much human activity is unreasoned, determined not by conscious intentions (present or future) but by factors such as habits (e.g., Triandis, 1977, 1979), scripts (e.g., Abelson, 1976; Langer, 1978, 1983; Langer, Blank, & Chanowitz, 1978) and affective preferences (e.g., Triandis, 1977, 1979; Zajonc, 1980; Zajonc & Markus, 1982).

Second, some very recent research (Sheppard & Buning, in press; Sheppard, Warshaw, & Hartwick, in press; Warshaw et. al., in press) suggests that the performance of future behavior is often viewed and processed as a goal, with present intention (BI) determining only whether the individual attempts to perform the act, environmental and/or personal impediments possibly preventing the behavior from being enacted. Ajzen himself (in press) acknowledges his agreement with Warshaw et. al.'s (in press) position that future behaviors are often goals in subjects' minds. For example, consider a man who has occasional impotency problems. Clearly, he might strongly intend to have sex tonight, but may later find himself incapable of carrying out this intention. Third, in most applied research, where measures of intention must often be administered well in advance of behavior, intentions are quite likely to change (Sheppard et. al., in press; Warshaw et. al., in press). Hence, even if behavior is strictly determined by intent, the pertinent intention is that which exists immediately antecedent to behavior, and not that which is measured by the researcher well in advance of behavior (i.e., BI). Individuals may consider possible changes in intention when forming expectation (BE)

The overall thrust of these arguments is compelling, suggesting that factors other than present intention (BI) are often major determinants of future behavior. The only questions, then, are whether these determinants can be anticipated with any degree of accuracy in advance of behavior and, if so, whether they are incorporated within the individual's behavioral expectation (BE). Theoretical and empirical research by Warshaw and his colleagues (Sheppard et. al., in press; Warshaw & Davis, 1984; Warshaw et. al., in press) suggest affirmative responses to both questions. If true, then BE is both conceptually and operationally superior to BI as a general predictor of future behavior.

Behavioral Intention (BI) and
Behavioral Expectation (BE) Have Been Confounded
in the Literature

Prior to the recent work of Warshaw et. al. (in press), researchers had not distinguished intention (BI) from expectation (BE). Rather, BE informally emerged as a theoretical and operational equivalent of BI. This is clearly reflected in the operationalization of intention (BI) across the many studies that have examined this construct. Namely, intention (BI) has sometimes been measured by asking individuals to indicate whether or not they intend to perform a behavior (usually on some scale of subjective probability); at other times, it is measured by asking individuals whether or not they will perform a behavior (again on some scale of subjective probability). From our perspective, the latter would actually be measuring behavioral expectations (BE) rather than intentions (BI).

Fishbein and Ajzen themselves have confounded expectation (BE) and intention (BI) in both theoretical and empirical research. Namely, under the guise of theorizing about intention, they sometimes define the construct as we define intention (BI) (e.g., Ajzen & Fishbein, 1973, 1980, (e.g., Ajzen & Fishbein, 1980, p. 42) p. 42) and at other times as we define behavioral expectation (BE). The constructs have also been used interchangeably in experiments conducted to test the Fishbein and Ajzen intention (BI) model. For example, Ajzen (1971), Ajzen and Fishbein (1972), Bentler and Speckart (1979, 1981), Fishbein and Coombs (1974), Jaccard, Knox and Brinberg (1979), and McArdle (1972) all used expectation (BE) rather than intention (BI) measures to research intention (e.g., 'I will vote for candidate A: probable__::__:__:__::__: improbable'). Other research has correctly employed intention type (BI) scales to study intention (e.g., Ajzen & Fishbein, 1970, 1974; Bowman & Fishbein, 1978; Davidson & Jaccard, 1979; DeVries & Ajzen, 1971; Fishbein & Ajzen, 1980; Fishbein, Ajzen & Hinkle, 1980; Fishbein, Bowman, Thomas, Jaccard, & Ajzen, 1980; Jaccard & Davidson, 1979; Sejwacz, Ajzen, & Fishbein, 1980; Sperber, Fishbein, & Ajzen, 1980). These articles all used scales which specifically referred to intent (e.g., 'I intend to use birth control pills: unlikely__::__:__:__::__: likely'). Reflecting the breadth of this problem, in their review of 49 studies on Fishbein and Ajzen's model in the consumer behavior literature, Sheppard et. al (in press) found that, in those 24 studies for which it was possible to discern the type of intention measure being employed, 19 used expectation (BE) rather than intention (BI) measures.

Failure to discriminate between intention (BI) and expectation (BE) has not been restricted to research dealing with the Fishbein and Ajzen model. Triandis and his associates have also confounded the terms. For

example, Triandis (1976) and Adamopoulos and Brinberg (1979) used expectation-type (BE) measures in operationalization intent, whereas Brinberg (1979) employed intent-type (BI) measures.

Although the field has clearly used BI and BE interchangeably, we have argue on theoretical grounds that they are separate constructs, and that BE should outperform BI in predicting future behavior. The following study was designed to test these assertions. The study compares the ability of BI and BE to predict whether or not students actually perform each of 18 behaviors (B) that students commonly perform on weekends (e.g., eat some junk food, take a nap). Specifically, we expect the BE-B correlations to be greater than the BI-B correlations more frequently and by a greater magnitude across the 18 test behaviors than would be reasonable under the assumption that BE and BI are equivalent constructs.

Method

Subjects

The subjects were 197 student volunteers (45% female) enrolled in 8 separate sections of undergraduate marketing courses at a large eastern university. Of the 197 subjects, 84 (44% female) received the intention (BI) treatment and 113 (46% female) received the expectation (BE) treatment.

Procedure

Every subject completed a questionnaire on each of two separate occasions. The first questionnaire had two versions: some subjects (n=113) completed a version which asked their behavioral intentions (BI) and others (n=84) completed a version which asked their behavioral expectations (BE). Both formats concerned the students' performance of the following 18 behaviors during the upcoming weekend: eat only non-fattening foods;

		NO, DEFINITELY DO NOT INTEND						YES, DEFINITELY DO INTEND		
1.	Eat only non-fattening foods	1	2	3	4	5	6	7	8	9
2.	Go to a party Saturday night	1	2	3	4	5	6	7	8	9
	.	"				"		"		
	.	"				"		"		
	.	"				"		"		
18.	Take vitamins	1	2	3	4	5	6	7	8	9

The expectation (BE) questionnaire had the following format:

All things considered how likely is it that you actually will perform the given behavior some time next weekend:

(Circle the most appropriate number for each behavior)

	EXTREMELY UNLIKELY					EXTREMELY LIKELY				
1. Eat only non-fattening foods	1	2	3	4	5	6	7	8	9	
2. Go to a party Saturday night	1	2	3	4	5	6	7	8	9	
.	"					"		"		
.	"					"		"		
.	"					"		"		
18. Take vitamins	1	2	3	4	5	6	7	8	9	

The behavioral self-report (B) questionnaire had the following format:

Please indicate whether you actually did perform the specified behavior sometime last weekend:

(place a check mark in the appropriate box)

	DID PERFORM	DID NOT PERFORM
1. Eat only non-fattening foods	[]	[]
2. Go to a party Saturday night	[]	[]
.	"	"
.	"	"
.	"	"
18. Take vitamins	[]	[]

Results

The experimental procedure yielded 84 behavioral intention (BI) and 113 behavioral expectation (BE) measurements and their corresponding behavioral self-reports (B) for each of the 18 test behaviors. Table 1 shows Pearson correlations between BI and B and between BE and B for each behavior. For 13 of the 18 behaviors, the BE-B correlation is of greater magnitude than

Insert Table 1 about here

the BI-B correlation. This number is significantly larger than would be expected by chance alone (i.e., 9 out of 18) if BI and BE were equally predictive of behavior (B), as indicated by the binomial distribution test ($\text{Prob} \{ \geq 13 \text{ out of } 18 | P = .5 \} = .048$, $p < .05$). Further, a paired t test on differences between Fisher transforms indicates that the BE-B correlations are significantly greater in magnitude than the BI-B correlations across the 18 behaviors ($t(17) = 2.148$, $p < .025$, one-tailed).

Whereas the binomial test can be interpreted to mean that BE outperforms BI consistently across the 18 behaviors, the t test tells us that the magnitude of the differences is of practical significance. These tests both support our hypothesis that BE is more predictive overall than BI.

The BI-B correlations ranged in magnitude from .25 to .86 with a mean of .46. The BE-B correlations ranged in magnitude from .24 to .88 with a mean value of .52. All correlations in the study were significantly greater than zero at $p < .05$ or better. Looking at individual behaviors, we found the BE-B correlation to be significantly greater than the BI-B correlation for 4 behaviors using one-tailed Fisher z transformation tests, and approached significance for a fifth: take a walk ($z = 1.82$, $p < .05$); smoke some cigarettes ($z = 3.64$, $p < .001$); drink a soft drink ($z = 2.06$, $p < .025$); take vitamins ($z = 1.65$, $p < .05$); and write someone a letter ($z = 1.50$, $p < .10$).

Discussion

Across a wide array of common, everyday behaviors, expectation (BE) generally outpredicted intention (BI) in our study. Since so little is known about expectation (BE) as a construct, much work needs to be done. First, we must research the psychometric properties of BE. Morrison's (1979; also, see Kalwani & Silk, 1982) intention scaling model seems to provide a useful framework for modeling random and systematic error in BE.

Second, we need to research the distinction between BE and BI. This requires a test of convergent and discriminant validity between the constructs (e.g., Campbell & Fiske, 1959). More generally, the mental processes underlying the formation of BE judgements must be modelled. First Warshaw et. al. (in press) and then Ajzen (in press) have done preliminary theorizing about the issue. This work can possibly help us resolve a recent topic of controversy in the literature. Namely, researchers are debating whether past behavior (habits) and attitude toward behavior impact our performance of behavior strictly through behavioral intention (BI) or whether they also have independent explanatory power (e.g., Bagozzi, 1981, 1982; Bentler & Speckart, 1979, 1981; Fredericks & Dossett, 1983). Since BE is conceptually broader than is BI, researching this issue using both constructs might help clarify the present confusion. Future attempts to broaden our understanding of expectation (BE) judgements should look at such issues, as well as pertinent literature in fields presently outside the domain of mainstream intention research, such as work on judgemental heuristics and biases (e.g., Kahneman, Slovic, & Tversky, 1982) and self-schemata (e.g., Markus, 1977; Warshaw & Davis, 1984).

Such analyses will perhaps help us resolve many of the unanswered but important questions suggested by our distinguishing intention (BI) from expectation (BE): how do we measure individuals' perceptions of habits, impediments and changes in intention?; are these behavioral determinants anticipatable and anticipated in advance of behavior?; if they are, do these considerations get folded into BE?; how are they weighted in the formation of BE?; why does BE sometimes predict worse than BI?; and under what conditions is BE a determinant of behavior rather than merely a cognitive appraisal of behavior? Clearly, much work needs to be done.

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Table 1

Comparison of Behavioral Intention - Behavior (BI-B) and
Behavioral Expectation - Behavior (BE-B) Correlations (N=197)

Behaviors	Correlations ^b		BE-B>BI-B? ^a
	BI-B (n=84)	BE-B (n=113)	
Eat only non-fattening foods	.25	.33	YES
Go to a party Saturday night	.65	.56	NO
Take a walk	.38	.58	YES**
Eat an apple	.46	.51	YES
Watch something good on TV	.42	.46	YES
Eat some junk food	.29	.41	YES
Go to your weekend job	.86	.83	NO
Go out with friends Saturday night	.51	.57	YES
Take a nap	.38	.52	YES
Smoke some cigarettes	.71	.88	YES****
Study a few hours each day	.23	.33	YES
Drink a soft drink	.39	.62	YES***
Converse with some new attractive stranger you may want to date	.49	.28	NO
Write someone a letter	.36	.53	YES*
Eat a good meal	.29	.24	NO
Make yourself a sandwich	.51	.45	NO
Go out for dinner	.40	.47	YES
Take vitamins	.67	.78	YES**
Mean	.46	.52	

Significance Tests Between BE-B and BI-B Across All 18 Behaviors

1. Binomial Test $p(\geq 13 \text{ out of } 18 | p=.5) = .0481^{**}$
2. Paired t Test $t(17) = 2.148^{***}$

a Significant differences between BI-B and BE-B correlations are based on one-tailed Fisher z transformation tests.

b All correlations in the Table are significant at $p < .05$ or better.

* $p < .10$, ** $p < .05$, *** $p < .025$, **** $p < .001$.

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